

CLAIMS

What is claimed is:

1. A refrigerant cycle comprising:

at least two tandem compressors, said tandem compressors having outlets communicating with discharge fluid flow lines, and merging downstream of housing shells for said tandem compressors;

a first heat exchanger downstream of a merger point for said discharge fluid flow lines, an expansion device between said first heat exchanger, and a second heat exchanger upstream of said tandem compressors; and

a shutoff valve mounted on at least one of said discharge fluid flow lines communicating said discharge of said at least one compressor to said merger point, a control being operable to shutdown at least one of said tandem compressors, said shutoff valve blocking flow from the other of said tandem compressors to said at least one compressor, when said at least one compressor is shutdown.

2. A refrigerant cycle as set forth in claim 1, wherein said shutoff valve is electrically controlled by said control.

3. A refrigerant cycle as set forth in claim 2, wherein said shutoff valve is a solenoid valve.

4. A refrigerant cycle as set forth in claim 2, wherein said shutoff valve is normally biased to be open, but is electrically driven to a closed position.
5. A refrigerant cycle as set forth in claim 1, wherein said compressors are scroll compressors.
6. A refrigerant cycle as set forth in claim 1, wherein said discharge valve is mounted in the compressor discharge port.
7. A refrigerant cycle as set forth in claim 1, wherein said shutoff valve is mounted outwardly of said housing shell.
8. A refrigerant cycle as set forth in claim 1, wherein said shutoff valve is a check valve.

9. A method of operating a refrigerant cycle comprising the steps of:

- (1) providing at least two compressors, said compressors communicating a compressed refrigerant to a downstream merger location;
- (2) providing a control for operating said compressors, said control being operable to shutdown at least one of said compressors dependent on a determined load; and
- (3) providing a shutoff valve on the discharge fluid flow line of said tandem compressors to said merger location for said compressors, and said shutoff valve being closed to block flow through said fluid line from an operational compressor or compressors to a shutdown compressor or compressors when at least one of said compressors is shutdown.

10. A method as set forth in claim 9, wherein a control opens a shutoff valve shortly before a compressor start-up.

11. A method as set forth in claim 9, wherein a control opens a shutoff valve immediately after, or at the time of, a compressor startup.

11. A refrigerant cycle comprising:

at least two tandem compressors, said tandem compressors having outlets communicating with discharge fluid flow lines, and merging downstream of housing shells for said tandem compressors, said tandem compressors each being scroll compressors, said compressors having a discharge valve immediately downstream of a compressor pump unit, and within said housing shell;

a first heat exchanger downstream of a merger point for said discharge fluid flow lines, an expansion device between said first heat exchanger, and a second heat exchanger upstream of said tandem compressors; and

a shutoff valve mounted on at least one of said discharge fluid flow lines communicating said discharge of at least one compressor to said merger point, a control being operable to shutdown one of said tandem compressors, said shutoff valve blocking flow from the other of said tandem compressors to said at least one compressor, when said at least one compressor is shutdown, said shutoff valve being mounted outwardly of said housing shell.

12. A refrigerant cycle as set forth in claim 10, wherein said shutoff valve is electrically controlled by said control.

13. A refrigerant cycle as set forth in claim 10, wherein said shutoff valve is a solenoid valve.

14. A refrigerant cycle as set forth in claim 12, wherein said shutoff valve is normally biased to be open, but is electrically driven to a closed position.

15. A refrigerant cycle as set forth in claim 11, wherein said shutoff valve is a check valve.